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Top 10 Mobile Apps To Support LIS Students' Learning

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Abstract

This study intends to explore the use of mobile applications used by library diploma students, Universitas Airlangga in supporting their learning process. In this study, the 132 respondents were first, second, and third year of library diploma students who were willing to fill out questionnaires, taken from 200 active library diploma students. Online questionnaires were distributed for 2 weeks in February 2019, where students filled out online closed-ended questionnaires. The researcher also conducted in-depth interviews with several students to explore further data. There are 6 questions given, namely the type of smartphone used, the amount of memory and storage on the smartphone, the number of installed applications, applications that help in lectures, and application functions in supporting lectures. The most widely used applications are those which enable them to share information, communicate, and collaborate. Information sharing in the form of documents, videos, images, and text is mostly done by students through Whatsapp, Line, and Gmail. The mobile facebook application is used by students and students use this facebook group to monitor the tasks and information from lecturers and the department administrators. Mobile applications that are widely downloaded are translate applications and dictionaries; there are 3 applications that are commonly downloaded by students, namely Google translate, Kamusku, and KBBI (Indonesian Dictionary).

Keywords: Mobile application, LIS students, Library diploma, Smartphones, Mobile learning

Introduction

Mobile applications are developing along with the development of smartphones. In Indonesia there are more than 100 million active smartphone users, in which it becomes the fourth country with the largest smartphone user in the world after China, the USA and India. Smartphone is defined as phones that have the capability of a computer; not only have the ability of a normal mobile phone. Apart from being used for calling, smartphones are also used as data storage media, media for displaying data, GPS, content creator (using the phone camera or creative applications), document making, entertainment and games, and other smart functions. The characteristics of the smartphone include having mobile operating systems (OS) such as android, IOS; web feature; open source; enhanced hardware, such as touch screens, built in keyboards; and mobile PC (Sharma, 2012).

Smartphones are used by many people to assist their daily activities, starting from business, health, entertainment and education. Many academics use smartphones to facilitate their activities while on campus, start checking lecture schedules, contact colleagues, change documents, collaborate, and save various jobs to do elsewhere. Smartphones can be filled with various kinds of applications that support learning activities on campus, including communication applications Whatsapp, Line, BBM; application to search the web namely chrome, firefox, safari; application for storing, editing documents wps office, google drive; calendar, translator, note and others.

Diploma in Library Universitas Airlangga (DLUA), established in 1989 in Surabaya, Indonesia, is a 3 years library and information science (LIS) program that produces

professional skilled librarians. Since its establishment, DLUA has produced thousands of professional skilled librarians who are scattered throughout Indonesia. In the learning process, DLUA applies class lectures, library observation, professional practice or internship, and e-learning. Lecture materials and assignments are delivered through class lectures and e-learning. In addition, the library diploma has a shared communication path between lecturers, students, and admins through facebook, where they can share and upload information about timetable, lecture material, and assignments. In addition there are also Whatsapp groups between students and lecturers. When using facebook library diploma students and lecturers experiencing new way of learning and collaborating (Mulatingsih & Zuntriana, 2018).

Library diploma students use smartphones and their applications to access information sources in the library, view tutorial videos, browse sources from the internet, record material provided by lecturers, record assignments, discuss with friends, and translate lecture material and much more. This study intends to explore the use of mobile applications used by library diploma students, Universitas Airlangga in supporting their learning process.

Literature Review

According to Shyshkanova, Zaytseva, and Frydman (2017), Ukranian students are motivated to use smartphones or mobile phones and its applications for educational activities. The many benefits of mobile devices can support lectures, in which it may save space and time because when using smartphones, the students do not require other additional tools. Smartphone is also convenient because of its small size which makes it easy to carry everywhere. The learning process is also felt to become easier and more flexible with the use of mobile devices. Furthermore Dukic, Chiu, and Lo, (2015), stated that students in Hongkong and Japan majoring in libraries studies use smartphones to communicate, socialize, entertain, and obtain daily information needs. While the use of smartphones to support learning includes accessing lecture material, searching library catalogs, discussing assignments with friends, and taking notes. The students admitted that smartphones really helped their class activities. However there is also one obstacle that arise, that is, smartphone has a small screen. The smartphone is also used to access search engines, communicate, and other general uses. It was also stated by Lo, Cho, Leung, Chiu, Ko, and Ho, (2016) that only a few used smarphone merely for study or research purposes.

Many lecture assignments must be done in groups, so the use of smartphones and communication applications is very popular among students. They form groups in hope that they can do their assignments quickly. But there are times when group activities are disrupted by the emergence of silent readers or free readers, who are the less active group members. In the group, it is expected that all students will contribute in making assignments or lectures, but sometimes that goal could not be achieved. According to el-Massah (2018), in her study, students in UAE were not affected by the existence of free readers in their groups, this was due to students forming their work groups independently and choose who will be working with them, but as a result, the assessment of group members was not objective. Nevertheless, the results of the study state that free readers in groups are a threat to productivity and a solution is urgently needed to overcome this problem.

One of the mobile applications used by students is social media, where social media can be a medium of collaboration between students, lecturers, and other external parties, as stated by Ford, Bowden, and Beard, (2011). Furthermore, Wickramanayake and Jika (2018) states that students using mobile phones to access social media, and those applications have been a very popular media which facilitates entertainment and communication between students. It was also stated that the effectiveness of the use of social media was able to improve the skills of students, especially in the field of education. But the problems that arise

regarding access to mobile phones include electricity connections, data security and confidentiality, internet costs, and unstable internet connections.

In addition to social media, communication applications such as Whatsapp is also widely used by students, as can be seen from the results of Malhotra and Bansal (2017) which mentioned that that 90% of undergraduate and postgraduate students in Hong Kong use Whatsapp to support educational activities. They use Whatsapp to chat, share pictures or videos and other sharing and communication activities. More than 75% of students use Whatsapp when they study at home, and 60% say Whatsapp has a positive effect on their learning outcomes on campus. Next is Barhoumi (2017) who states that Whatsapp and Twitter are easy-to-use tools, and both are platforms that are easy to be used for knowledge sharing activities. Video, text, and photos are the information that is most often shared by students. In his research, Krueger (2018) states that students in Japan use smartphones for communication activities through e-mail, chat applications, and social media only instead of using smartphones for learning. Continuing the previous research, Lau, Chiu, Ho, See-To (2017) reveal that smartphone usage in Japan tends to specifically focus on daily activities function such as using search engines, social networks, while for academic activities, the portion is still small, in which they only use online databases to search for academic material. Other research results also show that mobile phones are used for the sake of fulfilling daily information needs rather than academic needs. Ko, Chiu, Lo, Ho (2015) state that students in Japan, Hong Kong and Taiwan use mobile phones as communication tools.

Methodology

In this study, the 132 respondents were first, second, and third year of library diploma students who were willing to fill out questionnaires, taken from 200 active library diploma students. Online questionnaires were distributed for 2 weeks in February 2019, where students filled out online closed-ended questionnaires. The researcher also conducted in-depth interviews with several students to explore further data. The results of the collected data are then filtered and processed in table for analysis. There are 6 questions given, namely the type of smartphone used, the amount of memory and storage on the smartphone, the number of installed applications, applications that help in lectures, and application functions in supporting lectures.

Findings and Analysis

Smartphone possession

All respondents are in possession of smartphones with various brands, this smartphone is used to store applications while using them. The existence of smartphones is important and can even be said to replace laptops. In addition to its small form but is equipped with various function, it is also flexible to carry everywhere. The smartphone brands that are widely used include Samsung (24.4%), Oppo (22.8%), Iphone (12.6%), Xiaomi (12.6%), Vivo (9.4%), and Asus (6.3%). The brands are already well-known among smartphone users in Indonesia. In Indonesia Samsung is the most favorite and most purchased brand by users, followed by Xiaomi, Oppo, Vivo, and Advan (Jawapos, 2018). Students also use smartphones based on brands, where they are influenced by the brands that have gained reputation in their society. This is in line with the results of North, Johnston, and Ophoff's (2014) research at the University of Cape Town South Africa, in which they state that students consider prices and brands when buying smartphones. Contradict to other research by Rahim, Safin, Kheng, Abas, and Ali (2016), stated that students from Y generation choose product features (hardware and software) and brand as their consideration when buying smartphone.

Smartphones have become mandatory equipment for students, considering the price that is quite affordable, in which with approximately 150 USD students can already purchase a smartphone. The affordability of smartphone prices and internet data packages make it easier for everyone to use a smartphone that may help with academic activities. This is in line with Shyshkanova, Zaytseva, and Frydman (2017), where students use smartphones and the applications to support educational activities. Diploma and undergraduate students are considered adults and can be responsible for the use of smartphones that they carry and there is no prohibition to bring smartphones to campus, in contrast to secondary education (SD-SMA) in which the use of smartphone in the school environment is still limited. This goes in accordance with the results of Fernandez's (2018) study in Turkey which stated that diploma and undergraduate students are mature enough to use smartphones for educational purposes and not just to call or text. Smartphones are also very useful for browsing information that supports learning, and this will give students broader insights and expose them to a brighter future.

Memory / RAM and Storage Capacity

Random Access Memory (RAM) on smartphones also varies, the RAM stores temporary memory to help process information on a smartphone or computer. RAM capacity on a smartphone is usually not as big as a laptop, but in the recent days smartphones with large RAM capacity to maximize its usage are already emerging. The survey results show that smartphones with 2GB RAM capacity are the most common types to be found on the DLUA student's smartphone, which is 55.3%. Next 3GB as much as 25.7%, followed by 4 GB on 12.8%, and 1GB for 3.7%. The 2 GB capacity is still able to meet the needs of students to install several applications. The larger the RAM, the faster the transfer and shift from one application to another application, the faster the data is displayed, and multitasking is easier since it gives quicker access to various application to another application. Small RAM affects the systems to crash, run slowly, and lag. The greater the RAM, the more expensive the price of a smartphone.

In terms of data storage, most students own 16 GB smartphones in which there are 52%. Followed by 32 GB as much as 29%, and 17% 64GB, and 8GB for 2%. This storage function is to store applications and the data generated. The greater the data storage the more applications that can be installed on smartphones, and with the many applications also allow students to do many things.

Application installed

The number of applications installed by library diploma students in a smartphone or mobile application also varies, as many as 35.9% of students install 11-20 applications on a smartphone. While 31.3% of students install only 1-10 applications, and 12.2% of students install more than 30 applications, and only 9.9% install 21-30 applications. There are various applications installed in one smartphone because nowadays mobile-based applications are very rapidly developing, and have various functions to support lectures and to support daily activities such as supporting hobbies, simplifying life, and others.

Lots of installed applications are also influenced by the size of RAM and storage, if the initial questionnaire stated that the most RAM used is 2 GB and 16 GB, according to the number of applications installed on this section, there are mostly 11-20 applications. If the amount exceeds this, the application may not run smoothly (slow).

Of the many applications installed, not all of them support lectures; on the table 5 below are 10 applications to support student lectures.

Table 5

No	Lecture support application	%
1	Whatsapp	91.7
2	Line	73.5
3	Gmail	68.2
4	Chrome	64.4
5	Facebook	59.1
6	Google Translate	58.3
7	Youtube	56.8
8	WPS Office	55.3
9	KBBI Dictionary	36.4
10	Kamusku	33.3

Whatsapp

Whatsapp as a Facebook subsidiary is very popular among library students. As many as 91.7% of students use this application, due to the DLUA using Whatsapp as a communication medium. The usage of Whatsapp in undergraduate students of Veterinary also very popular and bring positive effect for their learning (Malhotra & Bansal, 2017). Whatsapp users in the world up to 2017 have reached 1.5 billion users, where active users reach 1 billion every day (Mashable Asia, 2017). While monthly active users penetrate 1.5 billion in 2018 (Techno Kompas, 2018). In Indonesia, the use of WA is the number one means of communication since it is an internet messenger that is most widely used by various groups. DLUA students choose to use WA, among others, as a medium of personal communication with students and lecturers, sending small files, simpler features, and it does not consume a lot of RAM. To install Whatsapp only 20MB of storage space is needed.

Line

Line is the second largest Instant messaging application in Indonesia, it has been used by more than 90 million Indonesians dominated by teenagers, and has been installed by more than 500 million users worldwide. As many as 73.5% of students choose to use Line to communicate with groups, especially in committee activities and group work. They chose Line because it was rich in features such as voting that they may use for meeting purposes, it is easier to find the files that are stored, the application allows them to make announcements, notes and album folders, there is timeline to keep track on contact updates, and a larger group than Whatsapp. This causes students to differentiate between Whatsapp and Line, if they communicate about lectures with lecturers, or personally with friends, and make student assignments, they will use Whatsapp. Furthermore, if the purpose is doing any text-based works, then Whatsapp will be the option, but if it deals with photos and various formats of student documents, they tend to use Line. However, if working for an organization, the student committee mostly uses Line, as well as when they send large numbers of images in their original size. Line is a quite heavy application that consumes 78MB, so it takes up a lot of space.

Gmail

Gmail is an application that is widely used by students to support the learning process during lectures. Gmail is used to send task files during lectures. Sending files, other than via Gmail, can also be done through Whatsapp. The use of e-mail is considered more effective if it is used to send large and more flexible files because students type their assignments through laptops and can be sent directly via e-mail, whereas Whatsapp is widely used to send small files or forward files to friends. As many as 68.5% of students use Gmail as their email platform. Gmail users have reached more than 1.5 billion worldwide, and 75% access via mobile Gmail (Teknokompas, 2018). Universitas Airlangga itself uses gmail as an institutional e-mail platform that is used by all employees, lecturers, and students. So we can be sure that all students have a gmail account but not all students download the gmail application on their smartphone. Mobile gmail usually takes around 14 MB of storage capacity.

Chrome

Google chrome is the most used browser by students. Students use the chrome mobile application when searching for information using a smartphone because it is easy to use and simple. Access to chrome is also smooth and can also be accessed on laptops and computers. Students are also used to using chrome so that this habit is carried away when they use a smartphone. Chrome is also convenient to use and user friendly, it has been integrated with Google Voice Search. But the disadvantage is, oftentimes there are many online advertisements that appear during the access to chrome. Students who do not use Chrome are mostly due to them using an iPhone where safari is the default browser. Safari is considered cleaner from advertisements and easy to operate. The file size depends on the smartphone, usually around 34MB, and has been downloaded by over 1 billion users.

Facebook

Facebook mobile application is also widely used by students (59.1%). The DLUA makes an official facebook group named "*New Library Group*" where members consist of lecturers, students, and admins who use this platform to communicate with each other. This is why students have to use facebook to stay in contact with lecturers and keep track of their academic updates. Students use Facebook when they want to access assignments from lecturers, upload assignments, and get information related to lectures. Only a few students use Facebook for personal purposes. Students do not like facebook as their personal social media due to the many hoaxes that appear through facebook. The file size varies depending on the gadget, starting from 1.2 MB, and has been downloaded by more than 1 billion users.

Google Translate

As a country that does not use English as the primary language, the ability of students to speak English is also not essential. Lectures at universities also use Indonesian, but there are many reference sources or material that use English. To help understand material in English, many students equip translation application, the most common is Google translate. The majority of lecture material in the DLUA uses reference resources in English, the guidelines used are also in English such as AACR2, DDC, and LCSH. Furthermore, there are several scientific article writing courses that require reference sources from journals both national and international, where the articles are also written in English, therefore it needs to be translated so that it may be easily understood by students. Google translate has gained trust by many students because the translation results are good, easy to use, and can be used to translate many sentences. The file size varies depending on the gadget, starting from 13MB, and this application has been downloaded by more than 500 million users.

Youtube

Youtube is one of the important applications downloaded by students on their smartphones (56.8%). Students use youtube, in addition to being an entertainment medium, as source of information to search for lecture material. Students use youtube to find tutorial videos related to lecture material such as how to install slim library software, learn English grammar, corel draw tutorials, catalog making tutorials, design learning, mysql database tutorials, and presentation design for powerpoint. In addition, youtube is also used to upload lecture assignments, and indeed, some college assignments require students to upload video assignments via youtube. The file size depends on the gadget used, commonly around 28MB, and has been downloaded by more than 5 billion users.

WPS Office

WPS office is very useful for creating, editing, storing, opening and sharing documents in various formats such as word, pdf, presentation, spreadsheet, memo, and doc scanners in a portable way. Students exchange lots of files and thus they require application that can be easily accessed, organized, and is able to save files. This application has size of 38MB, and has been downloaded by more than 100 million times. Developed by Kingsoft Office Software, Hong Kong.

KBBI (Indonesian Dictionary, Kamus Besar Bahasa Indonesia)

KBBI is an Indonesian dictionary application. Students are required to use KBBI to assist them in the scientific writing process during college. Nowadays many young people are using slangs in everyday conversation and the habit gets carried away to their academic or scientific writing, and therefore their writings become non-standard in terms of academic and/of scientific requirements. The file size is 6.5MB and has been installed by more than 1 million users. Created by domestic developers, Ministry of Education and Culture.

Kamusku (English Dictionary)

Kamusku (or “My Dictionary” in English) is an offline application for Indonesian-English dictionary and vice versa. *Kamusku* can translate words or sentences from Indonesian to English and vice versa offline. *Kamusku* is mostly installed by students for convenience and practical reasons. Students can use *Kamusku* even though they are offline, students can translate words without being connected to the internet, and however, for sentences they must stay online. The disadvantage of this application is that the translate speed is still inferior to google translate, as well as the translate results that are still less good compared to google translate. The file size is not large, consuming only 12MB, and this application has been installed by more than 10 million developers from within the country.

From the ten applications that are widely used by students to support their lectures, they can be grouped into 4 categories, namely applications for (1) sharing and communicating through Whatsapp, Line, Facebook, and Gmail; applications for (2) searching content using Chrome for text-based information and Youtube for video content; applications for (3) translating using Google Translate, *Kamusku*, and KBBI; and for (4) editing documents using WPS office. Of the 10 applications, only two applications come from local or domestic developers, those are *Kamusku* and KBBI, while other applications are from international developers who have already gained reputation such as Google and Facebook. Related to the results of the questionnaire regarding the benefits of applications for lectures, most students claimed that those applications make it easier to find information or lecture material either through the internet using a browser, or with file sharing activities both with

fellow students and lecturers. Facilitate communication and coordination with friends and lecturers.

The size of the application also affects whether the application will run smoothly and quickly or not. On average students have a smartphone with 16 GB of internal storage and 2 GB of RAM, while most applications are as large as 6.5 MB and above. Students also install other applications besides the forementioned above for their daily needs, such as Instagram for social media, Gojek and Grab for online transportation, games, and other applications.

Table 6

Benefits for Lectures	%
Makes it easy to find information/references	82.4
Makes it easy to find assignment material	67.2
Facilitates communication with friends	72.5
Makes it easy to get related information	72.6
Facilitates access to lecture material	67.2
Facilitates communication in working	64.9
Makes it easy to share information between students	60.3
Communication media between students and lecturers	59.3
Saves lecture material	56.5
Can open and edit MS office	50

One of the benefits of the application in supporting lectures is to make it easier to find information or references through browsers that are available on smartphones; this enables students to access information anytime and anywhere. In addition, it also makes it easier for students to find materials for college assignments using an information search browser. It also facilitates communication with friends through communication applications such as Whatsapp and Line, students are connected to each other, thus, making it easier for them to discuss or contact one another. This result is supporting Catharine's research in 2013 where search engine is the most popular application to support learning. This also goes in accordance with the research that has been carried out by Diliberto-Macaluso & Hughes (2016) in which the subjects are introduction to psychology students, stating that mobile applications will be more effective if integrated with learning material to support their study process. However, with a smartphone that can be used to browse information through the internet, students become lazy to use the resources contained in the library, as happened to LIS students in Japan, Hong Kong, and Taiwan where they use smartphones to browse information using search engines rather than using library, as stated by Ko, Chiu, Lo, Ho, (2015).

Applications that are installed on a smartphone also make it easier to get information related to lectures, such as schedules, assignments, place changes, and others. It helps students with easier access towards lecture material, either through e-mail or Whatsapp messages. It facilitates communication when students are working on tasks, facilitates sharing of information between students and teachers, allows students to save lecture material, and open, and then edit MS office. This result different to from the previous research that stated students use smartphone for communication rather that support learning (Mansour, 2016). This research also shows that the uses of smartphone by students is positive, while other

research discovers that undergraduate students in Greece use smartphone for entertainment purposes (Vassilakaki, Moniarou-Papaconstantinou, and Garoufallou, 2016).

When viewed from the application function for DLUA students, most of the applications are used for communication and collaboration to discuss lectures, editing documents, storing, and accessing information sources. All students agree if the application helps their lecture process. This is different from the findings of North, Johnston, and Ophoff (2014) at the University of Cape Town South Africa which stated that in addition to socialization, smartphones are also used to maintain privacy, security, and connect with families.

Conclusion

Mobile applications have a significant impact on the world of education, students and lecturers can directly feel how these applications give them easier access towards various things. Hossain and Ahmed (2016) said that smartphone are widely used by undergraduate students in developing countries to support learning. This result is similar to Indonesia, where most university students use smartphone. Of the many mobile applications installed by library students Universitas Airlangga are applications that support their educational activities during lectures taken within 3 years. The most widely used applications are those which enable them to share information, communicate, and collaborate. Information sharing in the form of documents, videos, images, and text is mostly done by students through Whatsapp, Line, and Gmail. The mobile facebook application is used by students because DLUA utilizes facebook as an official communication media through the group "New Library Group" and students use this facebook group to monitor the tasks and information from lecturers and the department administrators. Mobile applications that are widely downloaded are translation applications and dictionaries; there are 3 applications that are commonly downloaded by students, namely Google translate, Kamusku, and KBBI (Indonesian Dictionary). Another result shows similar thing, in which the most popular mobile application used by students in Egypt are Google mobile, youtube, facebook, e-mail, and mobile encyclopaedia (Mansour, 2016).

Recommendations from this study are (1) DLUA should choose applications that suit their needs as a medium of communication and sharing between students, lecturers, and academic staff, (2) Smartphone developers, should take notice on trends among the youth in terms of smartphone usage in education environment, so that smartphone may better facilitate the needs of diploma and undergraduate students.

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Appendixes

Table 1. Smart Phone

Mobile Phone	%
Samsung	24.4
Oppo	22.8
iPhone	12.6
Xiaomi	12.6

Vivo	9.4.
Asus	6.3

Table 2. RAM capacity

(RAM)	%
2 GB	55.3
3 GB	25.7
4 GB	12.8.
1 GB	3.7

Table 3. Storage Capacity

Long storage	%
16 GB	52
32GB	29
64 GB	17
8 GB	2

Table 4. Application Installed

Number of applications installed	%
11-20	35.9
1, 10	31.3
> 30%	12.2
9:30 PM	9.9